

# watson



Species and Communities Branch newsletter for Threatened Species and Ecological Communities conservation  
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## New mound springs located

by Val English

WWF-Australia's Wetland Watch Program aims to help landowners conserve high conservation value wetlands on private land. In early 2007, Wetland Watch sought expressions of interest from interested local landowners and two landholders in Bullsbrook contacted WWF about springs on their land.

Wetland Watch project officers recognised that the springs were very unusual and probably highly significant, and contacted the Department of Environment and Conservation's (DEC's) Species and Communities Branch to seek advice as to whether the springs might be new occurrences of the threatened ecological community 'tumulus springs' (organic mound springs, Swan Coastal Plain). In June 2007, staff from DEC's Species and Communities Branch and Swan Coastal District met on site with the landholders and the Wetland Watch project officers to survey the spring areas.

The two springs were quite different, but both were permanent seepage areas with large volumes of water emerging from mounds, or layers, of peat. The sites were also covered in very dense vegetation, with one spring area being quite impenetrable. The two areas were indeed found to contain new



occurrences of the mound springs threatened ecological community!

These very special permanently wet spring areas have been found to be associated with a suite of plants and invertebrates that occur nowhere else, and some interesting species were recorded at the new Bullsbrook sites. This included the fern *Cyrtosorus interruptus*. This soft fern has a very odd distribution pattern that appears to be completely determined

**Above** New mound springs.  
Photo – Val English

by the presence of permanently wet peaty habitat. It is found in the Gingin Brook area in very wet sites including mound springs, in mound springs that occur in the Kimberley area (more than 2,000 kilometres from the Bullsbrook site), and was also recorded historically from a site near the Murchison River (about 500 kilometres away). It is not known from any areas in between these widely scattered locations.

Intact vegetated mound springs of this type were previously only known from four locations on the Swan Coastal Plain, and all occur close to the new Bullsbrook springs. The newly located springs have increased the number of known springs of this type by 50 per cent, and have added significantly to their total known area.

The landowners are very keen to work with WWF and DEC to conserve these remarkable new springs for future generations to appreciate.

**For more information contact Val English on (08) 94232409 or email [val.english@dec.wa.gov.au](mailto:val.english@dec.wa.gov.au).**



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# The black-flanked rock-wallaby: Cape Range National Park

by Sonja Creese

The black-flanked or black-footed rock-wallaby (*Petrogale lateralis lateralis*) was once widespread throughout Western Australia. However, due to local extinctions, its range has declined to a few isolated populations and it is now listed as 'Vulnerable'. Introduced grazing species, such as the feral goat, are thought to compete with the rock-wallabies for food and shelter resources. A study funded by DEC and Murdoch University was conducted from January to December 2006 at Pilgonaman and Mandu Mandu Gorge in Cape Range National Park, Exmouth. The purpose of the work was to provide preliminary information to help determine if the feral goat and the euro are competing with the black-flanked rock-wallaby for food resources.

The results of the scat analysis indicated that a significant dietary overlap of plant species occurred between black-flanked rock-wallabies, euros and feral goats in Pilgonaman Gorge and Mandu Mandu Gorge in both summer and winter. Of the identified species of plants in the scats collected from Pilgonaman Gorge, *Myrtaceae* sp., *Sida* sp., *Cenchrus ciliaris* and *Ptilotus obovatus* were consumed by all three mammals. Five plant species were consumed by feral goats and rock-wallabies and only one species overlapped for euros and rock-wallabies. Of the identified species of plants in the scats collected from Mandu Mandu Gorge, only one identified plant species was consumed by all three mammals and

**Right** Pilgonaman Gorge.

Photo – Sonja Creese

**Far right** Black-flanked rock-wallaby with joey.

Photo – Nick Thake



an overlap of three species occurred for the black-flanked rock-wallaby and the feral goat. Furthermore, no identified plant species were found to be consumed only by the black-flanked rock-wallaby at either gorge.

The dietary overlap was found to be more significant between feral goats and rock-wallabies which is particularly disturbing as rock-wallabies are highly dependent on the plant species occurring within their rocky habitat for food resources as they have a limited home range. Feral goats are likely to be a greater potential competitor with rock-wallabies during severe, dry conditions when food resources are restricted. More research is needed to determine if there is greater stress on the rock-wallaby populations during extended periods of drought. Anecdotal evidence from field observations suggests that the presence of feral goats near rock-wallaby refuge sites visibly distresses

black-flanked rock-wallabies and may alter their normal foraging behavior. More observation is required to substantiate this theory.

Evidence of predation by foxes on rock-wallabies was also observed on numerous occasions throughout the study.

DEC actively undertakes measures to reduce the feral goat populations in Cape Range National Park. However, only with follow up research after a significant reduction in goat numbers could a true measure of the impact of competition from feral goats on populations of rock-wallabies in Cape Range National Park be determined.

**For more information contact Sonja Creese on (08) 9423 2372 or [sonja.creese@dec.wa.gov.au](mailto:sonja.creese@dec.wa.gov.au).**

## Udamung is ringing with Mogumber bells

by Gillian Stack

*Darwinia carnea* is an attractive plant with large pendulous flowers, which are pale green flushed with pink. There are two forms of *Darwinia carnea*, and these seem likely to be described as separate subspecies in the future. One form is found near Mogumber, and is commonly known as the Mogumber bell. The other form is located near Narrogin (known as the Narrogin bell), with no populations known between these two extremes.

One wild population is known from the Mogumber area, spread over three private properties, where *Darwinia carnea* grows in lateritic gravel and brown loam on massive laterite breakaways in open low

**Right** Translocated young Mogumber bell, already flowering.

**Far right** Natural location of Mogumber bell on top of lateritic ridges.

Photos – DEC

woodland over heath. This population is at risk from isolated events that may cause local extinction, and also lacks security of tenure. For these reasons, a translocation was initiated under the Natural Heritage Trust-funded Biodiversity Hotspots project. Udamung Nature Reserve was selected as the translocation site, based on its combination of suitable habitat, security of tenure and lack of threats. The wild population occurs within DEC's Avon-Mortlock District, while the translocation site is located approximately 15 kilometres

to the south, within DEC's Perth Hills District.

An unusually high number of plants for translocation (400) were produced by the Botanic Gardens and Parks Authority's Nursery, which had anticipated higher mortality at the nursery stage. These vigorous plants were planted, fenced and reticulated with the assistance of a large team including staff from DEC's Perth Hills District, Avon-Mortlock District, Swan

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# Net-veined gyrostemon disturbance trial

by Gemma Phelan

DEC's Geraldton District conservation officers have recently carried out a disturbance trial as part of the recovery of the critically endangered net-veined gyrostemon *Gyrostemon reticulatus*. The species is listed as threatened under Commonwealth and State legislation.

*Gyrostemon reticulatus* is a quick-growing ephemeral shrub that has been recorded after fire or mechanical disturbance at all known locations. It is a fairly nondescript shrub that reaches a metre in height, has short, thin, crowded leaves, and inconspicuous male and female flowers that occur on separate plants.

Following historical collections made in the 1930s in the Northern Agricultural Region, the species was considered extinct for more than 50 years. It wasn't until 1990 that another collection was made of the species by a local naturalist, Brother Wim van Veen.

After its rediscovery, *Gyrostemon reticulatus* was found at five locations between Mullewa (100 kilometres east of Geraldton) and Beacon (100 kilometres north of Merredin). At three of the populations all plants have died since the populations were discovered. There have been difficulties locating the other two populations so they have not been monitored in recent years. Although it may eventuate that *Gyrostemon reticulatus* no longer exists as an extant population, it is believed that the species persists as a soil seed bank.

Given the loss of extant plants from at



**Above left** Net-veined gyrostemon male plant. Photo – Alanna Chant

**Top** Brother Van Veen and Cathy Page at the trial site. Photo – Gemma Phelan

**Above** DEC officer Craig Tuesley conducting trial burn. Photo – Gemma Phelan

least three populations, coupled with the fact that the longevity of the seed bank is unknown, it was decided to induce recruitment at one of the locations rather than waiting for a wildfire to occur.

The disturbance trial was conducted in May 2007 at a remote farm near Mullewa. When first discovered by Brother van Veen the trial population consisted of only a handful of plants. A wildfire in 2000 caused a mass germination event, with 500 plants growing to maturity and setting seed. The last plant from the cohort died earlier this year. It was noted that the densest germination occurred adjacent to a fire break, leading to the hypothesis that the species responds best to a combination of fire and soil disturbance. Fortunately Brother van Veen was able to attend the trial, 15 years after he first discovered the population.

Fire, smoke water, minor soil disturbance (raking), and combinations of these treatments were applied to the trial site to determine the most effective method for triggering germination. Although it is believed that a seed bank exists in the soil, to ensure negative results are not attributed to a lack of seed, soil cores were taken from plots for analysis, and a small amount of seed from the Threatened Flora Seed Centre was placed into each plot prior to treatment application. The trial is protected by an existing stock fence and a rabbit-proof fence that was set up around the plots. Germination rates will be monitored every three months.

If the trial is successful, germination may be triggered at a larger scale at the trial site and also carried out at other populations of *Gyrostemon reticulatus*. Other management actions to be conducted this year for the species include surveys at the historical locations, and a *Gyrostemon reticulatus* identification letter-drop to landholders in the area.

The *Gyrostemon* disturbance trial was undertaken as part of the 'Back from the Brink' project, which is aimed at increasing the security of threatened flora, fauna and ecological communities in the Northern Agricultural Region. Back from the Brink is implemented by DEC, funded by the Federal and State governments and administered by the Northern Agricultural Catchments Council.

For more information contact Gemma on (08) 99640912 or email [gemma.phelan@dec.wa.gov.au](mailto:gemma.phelan@dec.wa.gov.au)

Udamung is ringing with Mogumber bells

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Coastal District and Species and Communities Branch. Technical issues involved with installing and securing fencing and reticulation on a very lateritic site were dealt with by Perth Hills District work crews. Among other challenges, a welder was used to secure the water tank to its concrete pad! It was extremely useful to have much-needed help to get so many plants into the ground.

In August 2007, monitoring revealed that the plants had grown well in the 12 months since planting and that survival was also very high. Monitoring will continue, and will seek evidence of a second generation, indicating the start of the naturalising process for this translocated population.

For further information contact Gillian on (08) 94232344 or email [gillian.stack@dec.wa.gov.au](mailto:gillian.stack@dec.wa.gov.au).



# Manjimup Baudin's cockatoo kindergarten

by Lee Fontanini

A briefing note was delivered to the Manjimup Land Conservation District Committee (LCDC) from the Upper Lefroy Catchment Group in Manjimup three years ago that stated Baudin's cockatoos were causing apple damage and huge losses to fruit production in local orchards, and asking 'what could be done'?

After successfully gaining funds from the Threatened Species Network (TSN) Community Grants administered by the World Wide Fund for Nature (WWF), staff from the Southern Forests Landcare (SFL) group have been busy on the ground, working with local orchardists near Manjimup.

Two new scare devices were set up in orchards and trialled. The first was the BirdDeter system, which uses a radar to detect birds entering the orchard zone, with random visual and audio deterrent accessories. The second was the BirdGard system, which uses speakers emitting random noises that interrupt the birds' sensory system. Apple counts and damage assessments were carried out, and the BirdDeter system worked so well that the orchardist purchased the device.

Other activities for scaring Baudin's from orchards were introduced and continue to be investigated and improved upon. These include trained dogs and the use of model aeroplanes. Bird Frite cartridges have proved to be very useful and although expensive, when used in conjunction with blanks, are another valuable tool. Birds quickly learn that Bird Frite is a threat and have been observed to leave before the 'cracker' explodes into a loud noise and radiating shock waves the birds can feel.

Daily records of bird activities were also recorded providing new evidence that maybe the Manjimup area has its own 'resident' population of Baudin's, something staff from DEC and the WA Museum have found very interesting. We have also observed behaviour that may lead to better management strategies in the future. During a two-week dedicated trial focused on Baudin's cockatoos in orchards across six properties, young birds were observed being dropped off early in the morning in a 'kindergarten' bush area close to an orchard. At the end of the day, they were escorted back out into the forest for the night's roost. If this is proven to be the case, strategic intervention at their nights' roost may prevent the birds entering the orchard zones and keep them in the forest.

There is still a lot to learn about this cockatoo's behaviour and SFL will be seeking further funds to continue its work with the WA Fruit Growers Association, DEC, WA Museum and the Cockatoo Recovery Team.

**For more information contact Lee Fontanini, Coordinator Southern Forests Landcare, 52 Bath Street, Manjimup WA 6258, or phone (08) 977 18180.**

**Below** Interested parties gather to discuss new bird deterrent.  
Photo – Lee Fontanini



**Above** Recently acquired Muchea limestone reserve. Photo – Jill Pryde

## Important land purchase for conservation

by Val English

A series of threatened ecological communities (TECs) have been identified based on their rarity and threats to remaining patches of vegetation that occur on particular soil or landform types. The 'shrublands and woodlands on Muchea limestone' is one of these. This community was originally identified from a few small and isolated patches of vegetation remaining on these unusual 'Muchea limestone' soils on the eastern side of the Swan Coastal Plain near Perth. The soil type is associated with a suite of limestone-associated plant species that normally occur on coastal limestone landforms, but in this case occur on heavy clay or loamy soils typically with limestone outcropping, well away from the coast.

The remaining vegetation on 'Muchea limestone' soils totals about 175 hectares, of which about 65 hectares is now contained within reserves mainly as a consequence of opportunistic purchase of private land as it became available. About 90 hectares of the TEC has been grazed in the past, but a good proportion of this area is now regenerating following transfer of the land to the conservation reserve system, and fencing.

A small but interesting additional five hectare patch has just been purchased by the DEC. This patch contains areas of outcropping of Muchea limestone, and a suite of plant species such as obtuse leaved grevillea (*Grevillea obtusifolia*) and chenille honeymyrtle (*Melaleuca huegelii*) that are typically associated with these unusual soils. The site is located on Beermullah Road West near Gingin, may never have been grazed, and is long unburnt. The bushland is consequently in excellent condition.

The Muchea limestone TEC is listed as 'Endangered' in Western Australia. The purchase of this small patch of bushland in very good condition is an excellent addition to the conservation reserve system and improves the prospect of this community continuing to exist long into the future.

**For more information contact Val English on (08) 94232409 or email [val.english@dec.wa.gov.au](mailto:val.english@dec.wa.gov.au).**

# Flora management course 2007

by Amrit Kendrick

The annual DEC Flora Management Course brought together more than 35 DEC staff into the Porongorups during the week of September 17–21. Nature conservation officers, operations personnel, dieback interpreters and flora licensing staff from as far afield as Jurien and Geraldton, the Goldfields, the Wheatbelt, the Rangelands and the Perth hills and Swan Coastal Plain assembled to learn about flora conservation.

Each day, participants heard talks by presenters with a wealth of experience. They also took part in a field component where participants could see flora conservation in action.

The presenters covered a variety of topics, including the evolutionary history of Western Australian flora, how legislation is used to protect plants and how plants are adapted with specific physiological mechanisms to survive in their



environment. The details of how to collect and store viable seed from this unique flora and how to combat disease problems in plant communities were also covered.

Staff from DEC's South Coast Region showed participants a variety of threatened plant species and communities that the region is working to conserve. Rare flora populations examined included *Banksia brownii* and *Lambertia fairalli*. Regional staff also showed the group a translocation seed orchard of the exceedingly rare *Dryandra montana* and involved them in a post-burn survey of weeds and 'Declared Rare Flora' in Porongorup National Park.

Participants took part in many activities, including using an interactive key to identify plants in the Proteaceae family, and surveying transects and quadrats. They also sampled for *Phytophthora cinnamomi* dieback and sent their samples to the Vegetation Health Service for analysis.

**For more information contact Amrit on (08) 94232315 or email [amrit.kendrick@dec.wa.gov.au](mailto:amrit.kendrick@dec.wa.gov.au).**

**Above** Participants in Stirling Range National Park.

**Below** Participants visit rare flora populations. Photos – DEC



## Response to fire in two threatened communities

by Jenny Borger

Two threatened ecological communities occur to the west of Three Springs. These are the 'ferricrete floristic community' (Rocky Springs type) and 'assemblages of organic mound springs of the Three Springs area'. Some areas of these communities were burnt on New Year's Eve 2005–2006. Surveys of these areas were undertaken from April to June 2006 and photo points and transects were set up. Some of the areas were visited again in 2007.

The typical vegetation found in the Three Springs mound springs includes an upper stratum of flooded gum (*Eucalyptus rudis*), river gum (*E. camaldulensis*) and moonah (*Melaleuca preissiana*). *M. preissiana* occurs in all of the different sized springs, while the eucalypts are generally found in the larger springs. The second stratum is composed of sedges and rushes to an average height of 1.3 metres. Some larger springs have pockets of jointed rush (*Baumea articulata*) which grow to four metres high. Common shrub species include white myrtle (*Hypocalymma angustifolium*), *Acacia blakelyi*, *Guichenotia quascalva* (a Priority 2 species) and swamp paperbark (*Melaleuca raphiophylla*) (which grows as a tall spindly shrub in the spring complex, but will attain tree status on

nearby creek banks). Less common species are stinkwood (*Jacksonia sternbergiana*) (resprouting from the base after the fire), bracken (*Pteridium esculentum*) and *Gastrolobium ebracteolatum*. Variable-leaved hakea (*Hakea varia*) and *Dryandra stricta* (a Priority 3 species) grow on the edges with *Eucalyptus diminuta* (Priority 3) on ferricrete. Before the fires of 2006, only one specimen of *Gastrolobium* was located growing in a mound spring in the area, on private property to the north of the Bunney Road site.

Eighteen months after the fire, *Gastrolobium ebracteolatum* seedlings are numerous, with dense pockets to one metre high in the middle of the mound springs. *Acacia blakelyi*, which occurred as a scattered shrub more common on the edges, is now forming dense stands to six metres high, with 50 or more stems per square metre. *Guichenotia quascalva* disappeared from the mound springs with the fire, but several have been found recently germinating on the ferricrete area, with some at the flowering stage in July 2007. *Gyrostemon subnudus* and *Anthocercis ilicifolia* are common regrowth species on ferricrete following fire.

**For more information contact Jenny on [borger@bbnet.com.au](mailto:borger@bbnet.com.au).**



# Wattle they search for next?

(adapted from WWF Media release 30 July 2007)

They say Sunday is 'The Day of Rest'. This was not the case for 15 keen locals who gathered early on a chilly Sunday morning in July to help search for a threatened wattle in the Shire of Dowerin.

Participants, including local landholders, members of the Wongan/Ballidu Bush Care Group, DEC volunteers and DEC and WWF project staff searched for individual plants of a new population of the endangered, large-fruited Tammin wattle (*Acacia ataxiphylla* subsp. *magna*).

A five-hour search for the new population in a recently acquired conservation reserve south of Dowerin revealed more than 150 plants. Details of each plant, including plant health and location, were recorded.

"The search was a great success," said DEC Flora Officer Joel Collins.

"To see people out early on a Sunday morning keen to help out and learn more about locally threatened species shows the enthusiasm which exists for the local bush and environment in this area."

The new populations are the first to be discovered in Dowerin. Previously the large-fruited Tammin wattle was only known from the Tammin and Goomalling area. In addition to the range extension, the new population in Dowerin is the first population to occur on a DEC-managed nature reserve, and this is important for the long-term security of the sub-species. Other important information gained from the new discovery is critical information on the species' habitat requirements. The populations in Dowerin are found on deep yellow sands, whereas the Tammin populations occur on sand over laterite. The new discoveries have established the fact that the species has a wider range of habitat requirements than previously thought.

The survey was part of 'Back from the Edge', an Avon Catchment Council project delivered by DEC and WWF-Australia. The project is funded by the State, and the Australian Government's National Action Plan for Salinity and Water Quality and the Natural Heritage Trust, and is focused on the recovery of threatened species and ecological communities in the Avon region.

The data collected from the survey will be used by DEC for the future



management of the sub-species in accordance with the Interim Recovery Plan. DEC will also continue to manage the reserve for nature conservation.

**For more information contact Joel Collins, Flora Conservation Officer on (08) 9622 8940 or email [Joel.collins@dec.wa.gov.au](mailto:Joel.collins@dec.wa.gov.au) or Genni Farrelly, Avon Community Engagement Project Officer, WWF, (08) 9881 9213.**

**Top** Tammin wattle. Photo – Genni Farrelly  
**Above** Participants involved in the DRF search. Photo – Genni Farrelly

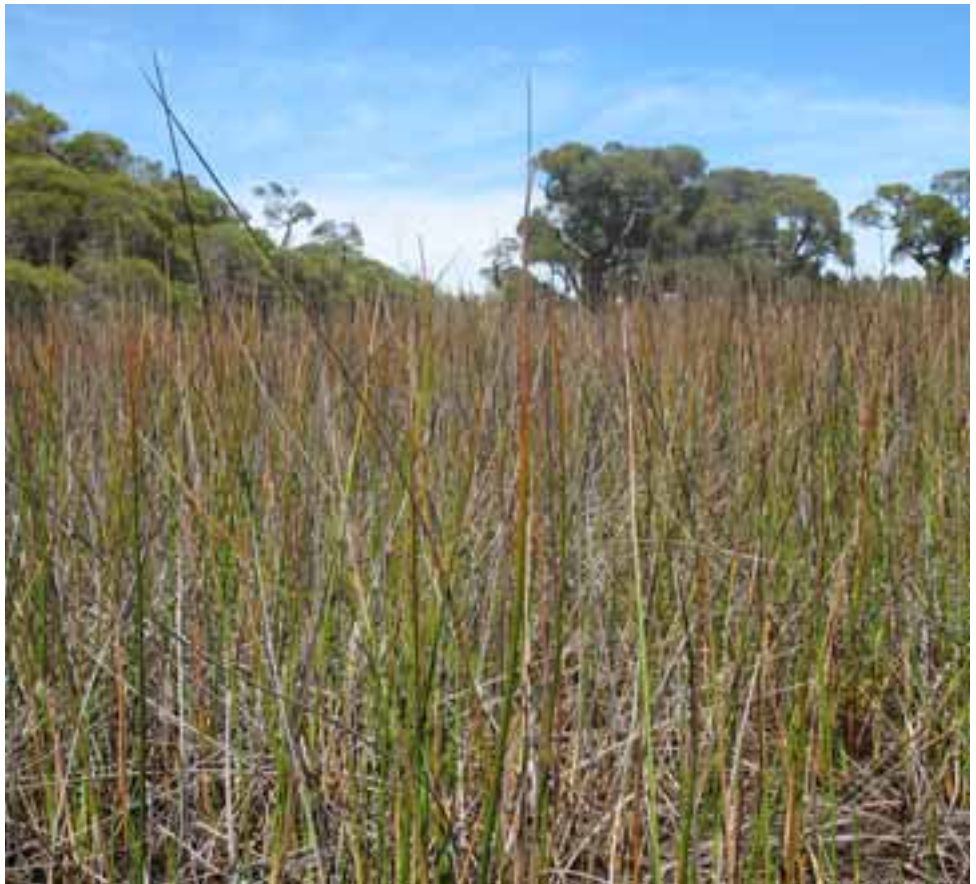
# Wetland monitoring and mapping in the South West

by Mia Morley

DEC is undertaking a project entitled 'Mapping, Classification and Evaluation of Wetlands, South West Western Australia'. The project is funded under the Natural Heritage Trust (NHT) and the National Action Plan for Salinity and Water Quality (NAP). These are joint initiatives of the State and Australian governments, and this particular project is administered by the South West Catchments Council (SWCC). This project is a continuation of activities undertaken in a previous SWCC project in 2006 and 2007.

The first of the two major aims of this project is to provide mapping, classification and evaluation of wetlands within 200,000 hectares of high priority areas for which there is little or no digitised data currently available. Study areas were chosen after consultation with regional staff and include the Leeuwin Naturaliste Ridge. The ridge was chosen due to increasing pressure from residential development and visitation and the presence of wetland associated tufa (structures that are built by microbes), threatened ecological communities in caves and critically endangered snail species. An area south of Boyanup and east of Nannup was also selected as Swan Coastal Plain wetlands at the northern end of this area have the potential to be affected by current water extraction, and wetland mapping for this area will complete coverage of the Blackwood Plateau.

The project also involves the monitoring an initial 13 sites on the Swan Coastal Plain that were developed under the previous project, and the completion of monitoring an additional 17 wetland sites in an area east of Margaret River



that were mapped in the previous project. The sites have been selected according to how well the of habitat, function, processes, biodiversity, scientific and cultural values are represented. Sites will be monitored in early spring and late spring in 2007 and autumn 2008. Parameters to be monitored include depth, pH, dissolved oxygen, conductivity, salinity, temperature, colour, nutrients, transparency, phytoplankton, macroinvertebrates, vertebrate fauna, vegetation, physical form and process, catchment disturbance and hydrological disturbance. The overall

purpose of the monitoring program is to determine baseline condition for wetlands throughout the region. It will provide additional data for the already established monitoring sites and initiate data collection for the new sites. The program will eventually allow for detection of changes in condition.

By providing better resources this project will assist with regional decision making and priority setting for activities affecting wetlands and will lead to better wetland management and protection.

For more information contact Mia Morley on (08) 9219 8756 or email [mia.morley@dec.wa.gov.au](mailto:mia.morley@dec.wa.gov.au).



**Above** Sumpland at Riverdale Nature Reserve.

**Far left** A tortoise at Lake McLarty.

**Left** A frog at Riverdale Nature Reserve.

Photos – DEC



# Recovery plans approved

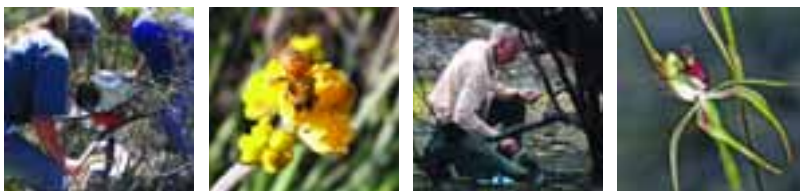
Five interim recovery plans have recently been endorsed by the Department of Environment and Conservation's Director of Nature Conservation.

All plans have been written with the assistance of the Commonwealth Department of Environment and Water Resources through the Natural Heritage Trust Program. All plans will be sent to the Commonwealth for consideration of adoption under the EPBC Act 1999.

No/Series No.	Title	Prepared by	DEC Region involved
IRP 232	Cape Spider Orchid, <i>Caladenia caesarea</i> subsp. <i>maritima</i>	Craig Douglas and Janine Liddelow	South West
IRP 233	Koobabbie poverty bush, <i>Eremophila koobabbiensis</i> ms	Craig Douglas, Benson Todd and Andrew Brown	Midwest
IRP 234	Norseman Pea, <i>Daviesia microcarpa</i>	Ryan Butler, Mike Fitzgerald and Andrew Brown	South Coast
IRP 235	Toolinna Adenanthos, <i>Adenanthos eyrei</i>	Emma Adams and Andrew Brown	South Coast
IRP 236	Selena's Synaphea, <i>Synaphea</i> sp. Fairbridge Farm	Amanda Fairs, Ryonen Butcher, Melissa Hoskins and Bob Huston	Swan/South West



Left Participants visit rare flora populations. Photo – DEC



From far left Emma Clingan (AWU, Moora District) and Don Williams (Property owner) using a post hole digger to prepare a hole to install a pitfall trap. Photo – Kathy Himbeck; a feral bee (*Apis mellifera*) on *Conostylis* sp. Photo – Jennifer Jackson; Ted Middelton planting a Albany banksia (*Banksia verticillate*) seed. Photo – Nikki Rouse; and *Caladenia graniticola*. Photo – Andrew Brown



Department of Environment and Conservation  
Our environment, our future

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